

**EM Computational Model Validations And Experiments
for
AH-1S Cobra Helicopter**

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Traditional Finite Difference Time Domain electromagnetic models for airframes have utilized cubical or rectangular-solid cell structure. For typical airframe structures, this is geometrically limited and requires an excessive number of cells to model the curved surfaces and small components found in typical aircraft. Helicopters serve as difficult problems in RF coupling analyses because of dimensional changes in the joint structure due to vibrations, the open access structure of helicopter main bodies, and the high density of easily exposed wiring.

The effort presented here describes a set of outdoor experiments on the AH-1S Cobra helicopter performed in order to validate and compare to the computational electromagnetic models of the bulk structure of the airframe in the VHF and UHF bands up to 4 GHz in the time domain. Also included in this were coupling measurements to wires and cables inside the airframe. Later experimental work will expose this aircraft to single HPM impulses in this frequency range as part of other activities.

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